

Amendments to the Claims

1. (currently amended):

A router for routing a packet belonging to a virtual private network (VPN) and having a label that includes a virtual private network identifier (VPN-ID) according to the Multiprotocol Label Switching (MPLS) standard, the router comprising:

- a) a first port for receiving a packet having a first label, a header and a payload;
- ab) a first table associated with the VPN, from among one or more separate tables, each table associated with a different VPN-associated with different labels, associated with the first label; and
- be) a processor for processing routing the packet based on an association between the VPN-ID and in accordance with the first table.

2. (original):

The router as recited by claim 1 wherein in the table is a route table.

3. (original):

The router as recited by claim 1 wherein the table is a forwarding table.

4. (cancelled)

5. (currently amended):

The router as recited by claim 1 further having a ~~second~~ port for transmitting said packet.

6. (cancelled)

7. (currently amended):

The router as recited by claim 1 wherein the label ~~comprising~~ information identifying a virtual private network and further includes a forwarding label.

8. (currently amended):

A method of routing a packet in a network, the packet belonging to a virtual private network (VPN) and having a label that includes a virtual private network identifier (VPN-ID) according to the Multiprotocol Label Switching (MPLS) standard, the method comprising:

- a) maintaining a first table corresponding to a first virtual private network;
- b) maintaining a second table corresponding to a second virtual private network; and
- c) routing a the packet based on a pre-existing an association with between the VPN-ID and one of the first table or and the second table.

9. (original):

The method as recited by claim 8 wherein the first table and the second table are route tables.

10. (previously amended):

The method as recited by claim 8 wherein the first table and the second table are forwarding tables.

11. (currently amended):

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CTM*
The method as recited by claim 9-8 further comprising the step of maintaining a forwarding table indexable by the VPN-ID a virtual private network identifier.

12.-13. (cancelled)

14. (currently amended):

The method as recited by claim 8 wherein the label ~~comprises~~ information identifying a virtual private network and ~~further includes~~ a forwarding label.

15. (cancelled)

16. (currently amended):

A method of routing a packet in a network, the packet belonging to a virtual private network (VPN) and having a label that includes a virtual private network identifier (VPN-ID) according to the

Multiprotocol Label Switching (MPLS) standard, the method comprising:

- a) maintaining a first forwarding table corresponding to a first virtual private network;
- b) maintaining a second forwarding table corresponding to a second virtual private network; and
- c) ~~receiving a packet having a label, a header and a payload;~~
and
- c) routing ~~a~~the packet based on ~~a pre-existing~~an association ~~with~~between the VPN-ID and one of the first forwarding table ~~or~~and the second forwarding table.

17.-18. (cancelled)

19. (currently amended):

The method as recited by claim 16 wherein the label ~~comprises~~ information identifying a virtual private network and further includes a forwarding label.

20. (cancelled)

21. (currently amended):

A network comprising:

- a) a first edge router configured to ~~receive~~route a packet ~~having a header and to transmit into~~through a wide area network cloud, the packet belonging to a virtual private network (VPN) and having a label that includes a virtual

private network identifier (VPN-ID) according to the
Multiprotocol Label Switching (MPLS) standard—a modified
packet having a label and the header;

b) a backbone router configured to receive the modified packet and route the modified packet based on a route table associated solely with the VPN-ID-label, from among one or more separate route tables, each table associated with a different VPN-labels; and

c) a second edge router configured to receive the modified packet.

Claim 21
22. (cancelled)

23. (currently amended):

The network as recited by claim 21 wherein the label comprises information identifying a virtual private network and further includes a forwarding label.

24. (original):

The network as recited by claim 21 wherein the backbone router comprises a second route table.

25. (currently amended):

The network as recited by claim 21 wherein the modified packet further includes, a second label identifying a forwarding table corresponding to the virtual private network, the forwarding table including a portion of the route table.

26. (currently amended):

A method of routing a packet belonging to a virtual private network (VPN) and having a label that includes a virtual private network identifier (VPN-ID) according to the Multiprotocol Label Switching (MPLS) standard, the method comprising:

- a) identifying, by a label, a receiving the packet including the label, a header and a payload destined for a virtual private network (VPN);
- b) identifying, from the label, a routing table associated with the VPN from among multiple separate routing tables associated with different VPNs labels; and
- c) facilitating routing of the packet to the VPN.

27. (currently amended):

The method of claim 26, wherein the VPN-ID is contained in a first label in the header label includes a virtual private network identifier.

28. (previously added):

The method of claim 26, wherein the routing of the packet is based on information in the header.

29. (previously added):

The method of claim 28-27 further comprising:

Identifying, from a second label, a forwarding table corresponding to the VPN, the forwarding table including a portion of the routing table.

30. (previously added):

The method of claim 29 further comprising:
identifying, from the forwarding table, label switching
information for routing the packet to the VPN.

31. (previously added):

The method of claim 30, wherein routing of the packet is based on
information in the forwarding table.

32. (previously added):

The method of claim 26 wherein the label includes a forwarding
label corresponding to a forwarding table.